

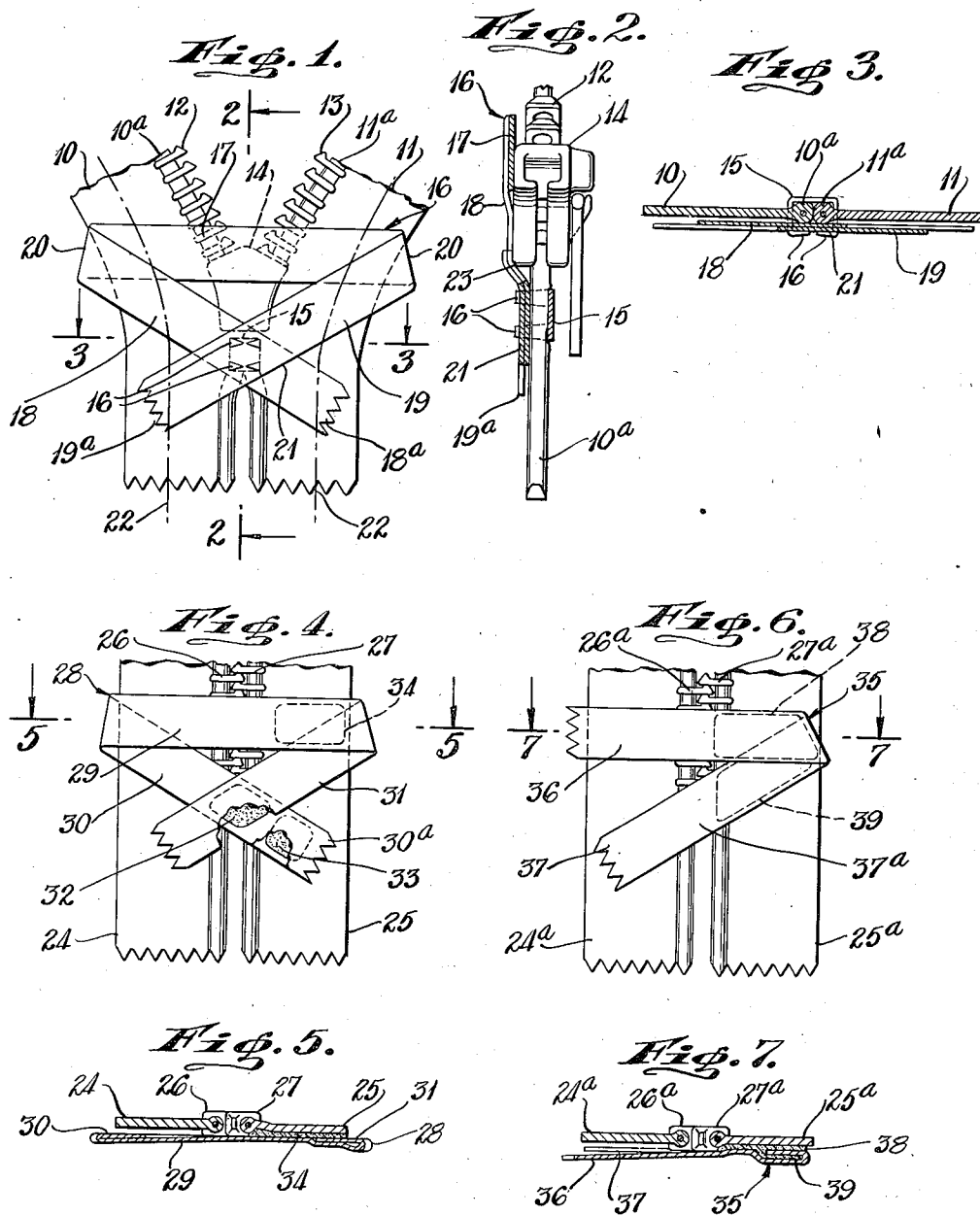
Dec. 23, 1941.

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2,267,119

REINFORCED STRINGER TAPE

Filed May 20, 1940



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UNITED STATES PATENT OFFICE

2,267,119

REINFORCED STRINGER TAPE

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Application May 20, 1940, Serial No. 336,072

4 Claims. (Cl. 24—205)

This invention relates to separable fasteners employing stringers coupled by a slider movable longitudinally of the linked edges of stringers. More particularly, the invention relates to means for reinforcing the bottom stop and the stringer tapes adjacent the bottom stop in adapting the fasteners to predetermined uses where the stringers are subjected to lateral stress or strains, adjacent the bottom stop thereof. The novel features of the invention will be best understood from the following description when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed, and in which the separate parts are designated by suitable reference characters in each of the views; and in which:

Fig. 1 is a plan view of one closed end portion of a pair of stringers showing one form of reinforcement applied thereto.

Fig. 2 is a section substantially on the line 2—2 of Fig. 1, illustrating the slider in side elevation.

Fig. 3 is a partial section on the line 3—3 of Fig. 1.

Fig. 4 is a view similar to Fig. 1 showing another adaptation of the invention.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a view similar to Fig. 4 showing another modification; and,

Fig. 7 is a section on the line 7—7 of Fig. 6.

In certain uses of separable fasteners of the kind under consideration, the fasteners are subjected to lateral stress or strain, tending to separate the stringers particularly adjacent what is referred to as the end or bottom stop. Such experiences are common in various kinds of apparel, and particularly in the application of fasteners of this kind to the trouser fly. It is the purpose of my invention to provide a very simple and economical means for reinforcing the end stop as well as the stringer tapes adjacent the end stop to take up the stress or strain to which the stringers are subjected.

In Figs. 1 to 3 inclusive, I have shown one adaptation of the invention; and in these figures, 10 and 11 represent the lower portions of two stringer tapes to the beaded edges 10a, 11a, of which are attached the links or scoops 12, 13, which are coupled and uncoupled by a conventional slider 14, movable along the stringers. At 15 is shown an end stop plate having two pairs of prongs 16 which are adapted to pass through the tapes 10 and 11 adjacent the beaded portions 10a, 11a, and crimped over as seen in Fig. 1 in securely coupling the tapes together. This construction as described is more or less conventional.

In practice I provide a reinforcing tape 16, the central portion 17 of which is arranged across the tapes 10 and 11, adjacent but in spaced relation to the end stop 15. The end portions 18 and 19 of the reinforcing tape are folded inwardly and

downwardly on the fold lines 20 to cross at a point in alignment with the end stop 15 as seen at 21 so that the prongs 16 also pass through the overlapped and crossed portions of the tape as is clearly indicated. The terminal ends 18a and 19a of the folded end portions 18 and 19 extend beyond the crossed overlapped portions 21 as will be clearly seen in Fig. 1 of the drawing.

With the construction shown in Figs. 1 to 3 inclusive the reinforcing tape becomes a permanent part of the complete stringer; and it is preferred that the various end portions of the tape which extend onto the stringer tapes be unattached. However, in some uses, these ends may be temporarily attached simply to hold the parts in position, or as taught in the other figures of the drawing, an adhesive may be employed simply to retain the parts in position. However, I have found in actual practice that no independent securing means is required. It will be understood that when the fastener is attached to its support by lines of stitching 22 extending longitudinally of the stringer tapes, these stitchings will also pass through the parts 17, 18 and 19 of the tapes and may also extend through the terminal ends 18a, 19a. It will thus be seen that when the fastener is attached to the garment or other support, the stringers will be reinforced against lateral separating stresses or strains by the transverse reinforced tape portion 17. The stringers will be further reinforced by the angularly disposed and crossed end portions 18, 19, the latter reinforcing the end stop 15 against opening stresses or strains. In fact, with a structure of the type and kind illustrated, the slider 14 will be checked in its downward movement by the crossed tapes 18, 19, as indicated at 23 in Fig. 2 of the drawing, rather than by the stop plate 15 itself, thus providing a good cushioned checking of downward movement of the slider.

In Figs. 4 and 5 of the drawing, I have shown another adaptation of the invention wherein stringer tapes 24, 25, are employed, these tapes having interengaging coupling links 26 and 27. In this construction, instead of initially permanently coupling the tapes 24, 25, together by an end stop plate similar to the plate 15, the stringer tapes are left uncoupled so as to facilitate independent stitching of the tapes to separate supports, after which a plate similar to the plate 15 is secured in position. With this construction a reinforcing tape 28 substantially similar to the tape 16 is employed, the tape having a central transverse portion 29 and inwardly folded and crossed end portions 30, 31. The end portions 30, 31 are cemented together where they cross each other as indicated at 32, whereas the terminal end 30a of the end portion 30 is cemented to the tape 25 as seen at 33, and the parts 29 and 31 are

cemented to the tape 25 as indicated by the dotted lines 34.

It will thus be seen that the reinforcing tape unit 28 becomes a unit part of the stringer tape 25, but is unattached to the tape 24. With this construction, the stringer tapes may be separated by the usual slider and independently attached to different supports. If necessary, a special line of stitching may be provided in securing the reinforced tape portions to the support and the stringer tape 24. However, in many uses, the tape 25 will first be secured to one support and then by a single line of stitching, the tape 24 will be attached to its support and simultaneously coupled with the tape 25 by passing the stitchings through the reinforced tape structure as will be apparent. When both tapes have been secured in position, then an end stop plate, similar to the plate 15, will be attached to the crossed portions of the tape ends 30, 31, as well as to the stringer tapes, in the same manner as taught in Figs. 1 to 3 inclusive.

In Figs. 6 and 7 of the drawing I have shown a further adaptation of the invention which consists in using what might be termed a half section of the tapes as illustrated in Figs. 1 to 5, inclusive; or in other words, by eliminating one of the angular ends of the tape. In this construction the stringer tapes are identified as 24a, 25a, with the links 26a, 27a on one edge of the tape. At 35 is shown a reinforced tape unit comprising the transverse part 36, similar to the part 29, and the angularly extending end 37, similar to the end 31.

The parts 36 and 37 are cemented together where foldably coupled and to the tape 25 as indicated by the dotted lines 38 and 39 in Fig. 6, whereas the ends of the parts 36, 37 are free and unattached to the tape 24a, as in the structure shown in Figs. 4 and 5. This fastener will be attached in the same manner as the fastener illustrated in Figs. 4 and 5, and further description in this regard is unnecessary. It will be well to mention, however, that with the structure shown in Figs. 6 and 7, the end stop plate, similar to the plate 15, when attached, is passed through the part 37a of the end portion 37 where it overlaps the adjacent beaded edges of the tape 24a, 25a, just beyond the end links of said tape.

While the structures shown in Figs. 6 and 7 will be slightly weaker in reinforcing properties, such structures will suffice in many installations where the strains or stresses are not excessive and will represent a more economical construction.

The invention will usually be employed in connection with what is usually referred to as the bottom end of the fastener, by which is meant the end at which the slider stops when the fastener is opened. For convenience in defining the relative locations of the different parts, it will be assumed that the invention is used at that end of the fastener, although it is to be understood that any language used in thus defining the invention is not used in a limiting sense, as of course the invention may be used where the usual "bottom" of the fastener is actually above the "top" thereof, as in a legging, and furthermore the invention may in some instances be used at the so-called "top" of the fastener, by which is usually meant the end of the fastener where the slider is when the fastener is closed.

While I have shown the invention as embodied in certain selected forms, nevertheless it is to be understood that I do not intend to limit my-

self except by the scope of the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In separable fasteners employing stringers having coupling links spaced longitudinally of adjacent edges of the stringers, means adjacent the lower end links on the stringers for reinforcing the stringers against lateral strain, said means comprising a unit in the form of a reinforcing tape having a part of the tape extending across the stringers above but adjacent said end links and attached to said stringers, and other parts of the tape extending from opposite ends of the first-named part thereof and at angles thereto and crossing each other and said adjacent edges of the stringers, and an end stop member securing said other parts together and to both stringers where they cross each other.
2. In separable fasteners employing stringers having coupling links spaced longitudinally of adjacent edges of the stringers, means adjacent the lower end links on the stringers for reinforcing the stringers against lateral strain, said means comprising a unit in the form of a reinforcing tape having a part of the tape extending across the stringers above but adjacent said end links and attached to said stringers, and other parts of the tape extending from opposite ends of the first-named part thereof and at angles thereto and crossing each other and said adjacent edges of the stringers, and a rigid end stop member securing said other parts together and to both stringers where they cross each other.
3. In separable fasteners employing stringers having coupling links spaced longitudinally of adjacent edges of the stringers, means adjacent the lower end links on the stringers for reinforcing the stringers against lateral strain, said means comprising a unit in the form of a reinforcing tape having a part of the tape extending across the stringers above but adjacent said end links and attached to said stringers, and other parts of the tape extending from opposite ends of the first-named part thereof and at angles thereto and crossing each other and said adjacent edges of the stringers, and an adhesive end stop member securing said other parts together and to both stringers where they cross each other.
4. In separable fasteners employing stringers having coupling links spaced longitudinally of adjacent edges of the stringers, means adjacent the lower end links on the stringers for reinforcing the stringers against lateral strain, said means comprising a unit in the form of a reinforcing tape having a part of the tape extending across the stringers above but adjacent said end links, the other part of the tape extending from one end of the first named part downwardly and inwardly at an angle thereto and crossing adjacent edges of the stringers at and beyond the end links, means securing the last named part to at least one of the stringers, and at least one end of the first part of said reinforcing tape being free and unattached to the stringer upon which said end is disposed whereby in securing the stringers to a predetermined article the positioning of said first named part of the tape with respect to the article and said stringers may be controlled prior to securing said free end to the article and the stringer.